

## GENERAL INDEX

[Illustrated articles are indicated thus.\* Editorials are indicated thus†]

<b>A</b> Accident: Pennsylvania near Washington, D. C. 599 Southern Pacific near Etiwa, Cal. 424 Southern Pacific at Hargis, N. M. 599 American Bridge Company 102 Air Reduction Sales Company 438 American Creosoting Company 192 American Forge Company 42 American Fork & Hoe Company 254 American Manganese Steel Company 42 American Railway Bridge & Building Assn. 159, 203, 341, 387, 434 American Railway Engineering Association: Convention program 159 News items 38, 98, 203, 250, 301, 341, 387, 434, 512, 564 American Steel & Wire Company: News item 42 New wire rope socket 609 American Wood-Preservers Association: Convention program 38 Convention report 57 News items 159, 203, 250, 341 Ann Arbor; new type safety contest 547 Armo Culvert Manufacturers' Assoc. 516 Armo Railroad Sales Company 42 Armstrong Manufacturing Company 304 Association News 38, 98, 159, 203, 250, 301, 341, 387, 434, 512, 564 Atchison, Topeka & Santa Fe; Constructs pipe-line at Grand Canyon 237 Atlantic Coast Line: Bridge repair by welding 471 Uses acetylene torch to crop rails 239 Atlantic Creosoting Company 254	Byers, A. M., Company; wrought iron culverts 297 <b>C</b> Calcyanide Company; Calcyanator fumigator 298 Canadian Concrete Products Co., Ltd. 162 Canadian National: Uses precast bridge slabs in bridge work 373 Waterproofing roof on 590 Carnegie Steel Company 254 Carolina Wood Preserving Company 516 Cars, motor: Fairbanks, Morse, windshield for 146 Fairmont M9 inspection car 149 Northwestern light motor cars 148 Ownership by railroads, age and obsolescence 410 Will progress continue? 1408 Caterpillar Tractor Company: Tractors used to fight snow by railroads 148 News item 516 Central Foundry Company 304 Central of Georgia; Welds joints in tunnel tracks 85 Century of Progress; Railroad exhibits 1273 Century Wood Preserving Company 516 Chesapeake & Ohio: Improves water supply 220 Track awards 188 Chicago & North Western: Building up joint bars 421 Water-treating plant at Clinton 418 Chicago Great Western; Effect of wrought iron plates welded to steel beams 323 Chicago, Milwaukee, St. Paul & Pacific: Prepares cross-tie program 320 Tightens bolts with special gang 182 Chipman Chemical Company; "Pack Back" sprayer 298 Cleveland Tractor Company: Cletracs with auxiliary equipment 149 News item 344 Colorado Fuel & Iron Company 254 Columbia Nut & Bolt Company, Inc. 206 Competition; Unfair advantage eliminated by "Code" 1359 Compressors: Ingersoll-Rand Company two-stage, air-cooled portable 609 Schramm, Inc., with rail-car mounting 150 Sullivan WK-314 two-stage compressor 150 Concrete: Concrete trains on Pennsylvania 235 Effect of alkali waters and soil on 152 How to repair deteriorated concrete 415 Precast bridge slabs used on Canadian National 373 "Co-ordinator" appointed for railways 1317 Corrosion of track fastenings 155 Crossings, highway: Survey of pavement construction 1224 Trucon Weirtruss crossing 83 Crossings, railway: Arc-welded on Pennsylvania 72 Bethlehem heat-treated 562 Culverts: Byers, A. M., Company, wrought iron culverts 297 Failures in stone or masonry culverts 248 Settlement in pipe culverts 295 Curves: Calculation of vertical curves 547 Length of rail on 91 Lining rail on 608 String lining without stakes 596	Electrification; on Delaware, Lackawanna & Western 27 Embankments; sodding slopes 377 Erie: Reorganizes track forces 368 Track awards 188 Excavator: Bucyrus-Erie Model 16-B 299 Expenditures; outlook for maintenance work 1335 <b>F</b> Fairbanks, Morse & Company; windshield for inspection car 146 Fairmont Railway Motors, Inc.: Ballast cleaner used on Pennsylvania 561 M9 inspection car 149 M23 ballast scarifier 297 Fire; watch the hazards 1225 Floors; insulation of 424 Foreman; a prophecy 192 Freight; loss and damage of 192 Fumigation; Calcyanide Company "Calcyanator" 298 <b>G</b> Gage: Frog and crossing limit gage 509 Indications of irregular gage 427 Gale Service & Construction Company 614 Gangs: Bolt-tightening gang on the Milwaukee 182 Reorganized on Erie 368 General Electric Company; generator mounted on Cleveland tractor 149 Generators; General Electric tractor-mounted generator 149 GEO turnout 383 Gillis & Company 398 Government code to eliminate unfair competition 1359 Grand Trunk Western; end tamping of ties on 469 Grinder; Railway Track-Work Company cross grinder 339 Gulf, Mobile & Northern; raising freight house roof on 550 Gulf States Creosoting Company 102
<b>B</b> Ballast and Ballasting: Cleaning the cribs 244 Fairmont ballast scarifier 297 Fairmont cleaning machine on Pennsylvania 551 Importance of cleaning 1585 Basford, G. M., Company 206 Bethlehem Steel Co.; heat-treated rail crossings 562 Bonds, Rail; maintenance men interested in 1465 Boston & Maine; employs diver for inspection work 23 Bridges and Bridge Work; see also Painting, Piles and Pile Driving, Trestles. Boston & Maine employs diver for inspection 23 Canadian National employs precast bridge slabs 373 Cleaning bridge seats 385 Effect of wrought iron plates welded to steel beams 323 Importance of inspection 1125 Inner guard rails, height of 429 Inspection of 558 Long ties at bridge ends 430 Offers new field for arc-welding 30 Paving of highway bridges 1273 Pennsylvania uses concreting trains 235 Prevention of accidents 190 Protecting traffic when making repairs 283 Reinforce bridge on A. C. L. 293 Replacing corroded cover plates on deck girders 471 Results of deferred painting 546 Seasoning of bridge timbers 180 Service life of falsework 332 Substructure failures on Pennsylvania and Southern Pacific 195 There is more to work with now 408 T. P. & W. installs Multi Plate arch 29 Treating second-hand timbers 95 Winter bridge inspection 95 Bucyrus-Erie Company: News item 304 16-B 1/2-yd. excavator 299 Buildings and Building Work; see also Painting, Roofs, Stations. Annual inspections 32 Enginehouse drains 93 Heating small buildings 466 Importance of inspection 1126 Insulating floors 154 Insulating ice houses 380 Methods to retard decay in lumber 336 Prevention of accidents 190 Raising freight house roof on G. M. & N. 550 Results of deferred painting 180 Salvaging materials 294 Size of downspouts 199 Standardizing details 604 Business Outlook 1361	<b>D</b> Dearborn Chemical Co.: New proportioning device 561 News item 288 Delaware & Hudson; track awards 188 Delaware, Lackawanna & Western; electrifies New York suburban zone 27 Delaware Steel Service, Inc. 162 Detroit Graphite Company 296 Derailment; see Accident Ditches; see Drainage Diver; Boston & Maine employs diver for inspection 23 Drainage: Cleaning cut ditches 198 Disposal of material from side ditches 244 For enginehouses 93 Heating system for turntable pits 470 Placing of perforated drain pipes 554 Standardization of side ditches 200 To prevent heaved track 1464 Water pockets require close study 496 Water pockets, their cause and cure 432 Drill; detachable bits, Ingersoll Rand Co. 432 <b>E</b> Eaton Manufacturing Company; new double-coil spring washer 432	<b>H</b> Harnischfeger Corporation 42 Heating; of pumping stations 33 Heat treating rails; new process for 601 Highland Iron & Steel Co. 438 Highways; do commercial carriers pay for use of? 1125 <b>I</b> Illinois Central: Modernizes water facilities 328 Rebuilds rail joints by gas welding 46 Uses Caterpillar tractors to fight snow 146 Improved railway earnings means better upkeep 1318 Independent Pneumatic Tool Company 304 Ingersoll-Rand Company: Air-operated sump pump 150 Detachable drill bits 432 Two-stage, air-cooled, portable compressors 609 Inland Steel Company 438 Inspection; see also Track Awards: Annual inspection of buildings 32 Routine track 474 Insulation; of floors 154 International Railway Maintenance Club; 98, 301, 564, 611 International Railweld Corporation 390 International Weld Testing Bureau 438 <b>J</b> Johns-Manville Sales Corporation 206, 304, 344 Jordan, O. F., Company 42 <b>K</b> Kentucky & Indiana Terminal; heating system for draining turntable 470 Kroeschell Engineering Company 438 <b>L</b> Labor; replaced by Machines? 137 Lake Erie Steel & Blanking Company 42 Lehigh Valley: Employs special hook to throw out rail 228 Repairs manganese trackwork by welding 68 Welding generator mounted in tractor 240 Letters to the Editor 299, 384, 395, 432 Lining Track: Before or after surfacing 332

Best time for.....	381	Rotary pumps, their uses and limita- tions.....	507	Tamping at ends of ties.....	334
Lining rail on curves.....	508			Time for surfacing.....	197
Procedure for foremen.....	505			Raising track.....	379
String lining curves without stakes.....	*596			Use of spot board.....	292
Lorain Steel Company; develops GEO turn out.....	*383			Switches; see also Turnouts:	
Louisville & Nashville; safety methods on lubrication; of turntables.....	*594			Ramapo-Ajax safety switch stand.....	*240
Lubricators! Maintenance Equipment Company lubricator.....	*147			Rise of switch points.....	94
Lufkin Rule Company; stainless steel tape-rule.....	*147				
<b>M</b>				<b>T</b>	
Maintenance Equipment Company; rail and flange lubricator.....	*147			Tamping; see Surfacing Track	
Maintenance men must cultivate obser- vation.....	†225			Tanks:	
Maintenance of Way:				Canadian National moves tank four miles.....	*289
Deferred work must be made good.....	†536			Formation of ice in.....	157
Effect of electrification on.....	*27			Inspecting water tanks.....	428
Only three months left.....	†409			Tax burden menaces railways.....	†179
Outlook in.....	†535			Tie Plates; Woodings Forge & Tool Co. spikeless tie plate.....	*146
Relation to freight loss and damage.....	*192			Tennessee Coal, Iron & Railroad Co.....	566
Renewals are needed.....	†361			Ties:	
Maintenance of Way Club of Chicago.....				Balancing supply and demand.....	287
38, 98, 159, 203, 250, 434, 564,.....	611			Digging in ties when renewing.....	246
Maloney Oil & Manufacturing Company.....	388			Dressing track after renewal of.....	502
Materials:				End tamping.....	334
Conservation of.....	†127			Handling on trailer.....	90
Salvaging of.....	294			Inspecting for renewal.....	557
Maps, use tailors' mending tissue to mount Metropolitan Track Supervisors' Club.....	420			Long ties at bridge ends.....	480
38, 98, 203, 301, 341, 512,.....	611			Milwaukee prepares crosstie program.....	*320
Minneapolis & St. Louis; practices safety Missouri-Kansas-Texas; replaces corroded cover plates on deck girders.....	234			Producers study supply and demand.....	*285
Missouri Pacific; drives ties to stabilize soft cuts.....	*546			Renewals in 1931.....	18
Modernization of water stations.....	†360			Spiking new ties.....	331
Morden Frog & Crossing Works.....	*362			Splitting preventives.....	286
Morrison Metalweld Process, Inc.....	304			Trend of renewals.....	287
				Use of various sizes.....	*285
				Timber connectors to strengthen wood joints.....	*281
<b>N</b>				Timken Steel & Tube Co.....	162
National Lumber & Creosoting Company.....	516			Toledo, Peoria & Western; installs Multi Plate arch.....	*29
National Railroad Appliances Association.....	159			Track and Track Work; see also Curves Lining Track, Embankments, Rail Joints, Rail Laying, Roadbed, Sur- facing, Track Bolts, Turnouts, Weld- ing:	
New and Improved Devices.....	609			Adding anti-creeper.....	606
146, 240, 297, 338, 383, 432, 509, 561,.....	609			Dressing track.....	502
New York Central:				Erie reorganizes gangs.....	*368
Builds up rail-ends with electric arc.....	*74			Kinks in surface and line.....	156
Repairs bulging wall by doweling and regrouting.....	*543			Prevention of heaving.....	200
New York, New Haven & Hartford; re- stores worn angle bars by welding.....	*77			Protecting track fastenings from cor- rosion.....	155
Nordberg Manufacturing Company; power track wrench.....	*146			Report on routine inspection of.....	*474
Norfolk & Western; track awards.....	188			Salvaging abandoned track on the Southern Pacific.....	*367
Northwestern Motor Company; light mo- tor cars.....	*148			Shimming practices.....	151
				Tightening bolts on the Milwaukee.....	*182
				Track Awards:	
<b>O</b>				Chesapeake & Ohio.....	188
Oil; boiled or raw linseed.....	36			Delaware & Hudson.....	188
Organization; see also Gangs:				Erie.....	188
Extra gangs in snow fighting.....	†127			Norfolk & Western.....	188
Standard plan not always practicable.....	†360			Pennsylvania.....	188
Oxweld Railroad Service Company.....	390			Track Bolts:	
				Cause of loose bolts.....	552, 559
<b>P</b>				Loose bolts and rail damage.....	†537
P. & M. Company.....	206			Trackmen, report on protection of.....	*480
Paint and Painting:				Track Supply Association; participation in convention "in Print" of Road- masters Association.....	500
Deferred maintenance detrimental.....	†180			Track Tools:	
Deferred painting must be made good.....	†585			Length of adzes.....	91
Deterioration of paint.....	431			Nordberg power wrench.....	*146
Painting structural steel.....	382			Ramapo Ajax frog and crossing limit gauge.....	*509
To retard decay.....	385			Sharpening adzes.....	425
Turpentine for red lead.....	607			Tractor; Cleveland Tractor Company Cle- trac.....	*149
Pavement; on highway bridges.....	†273			Traffic; what employees can do to obtain.....	†583
Pennsylvania:				Trestles, see also Piles:	
Arc-welds crossings.....	*72			Anchoring timber structures.....	31
Bridge failure at Washington, D. C.....	599			Filling high trestles.....	291
Conducts extensive research work.....	*551			Methods of preventing damage from ice jams.....	153
Operates Fairmont ballast cleaner.....	188			Removing stringers from.....	245
Track awards.....	*327			Replacing stringers in creosoted bal- last-deck.....	605
Uses auto-truck for maintenance work.....	*235			Trucks; Pennsylvania uses auto-truck for maintenance work.....	*327
Uses concreting trains in bridgework.....	*187			Truscon Steel Company; new highway crossing.....	*83
Peoria & Pekin Union; renews turntable.....	254			Tunnel; Central of Georgia welds track in.....	*85
Permacrete Concrete Products, Inc.....	*338			Turnouts:	
Permutit Company; zeolite water softener.....	556			Furnished with rail anchors.....	242
Piles and Pile Driving:				GEO turnout, Lorain Steel Company.....	*383
Penetration records.....	503			Lining of.....	30
Replacing in trestles.....	376			Rail joints at.....	334
Sawing piles under water.....	93			Turntables:	
Pipe; thawing underground lines.....	304			Heating system for drainage of pit.....	*170
Positive Rail Anchor Company.....	240			Lubrication of.....	96
Power Plants:				Renewal project on Peoria & Pekin Union.....	*187
Tractor-mounted welding generator.....	*147			Taking proper care of.....	468
Westinghouse gas-electric sets.....	*338				
Westinghouse "Thermoguard" motors.....				<b>U-V</b>	
Power Tools:				Unemployment.....	†407
Future trend of.....	*131			United States Steel Corporation.....	42, 304, 438
History of their introduction.....	†128				
In active use on American railways.....	†181			<b>W</b>	
Promote safety.....	*144			Washer, Spring; Eaton Manufacturing Co.....	*432
Relation to unemployment.....	*140			Water Pockets; see Drainage	
Successful use of.....	254			Waterproofing roof on Canadian National Water Service; see also Pipe, Tanks, Wells:	*590
Prendergast Company.....	558			A. T. & S. F. constructs 12,000 ft.	
Pumps:					
Difference between service and fire.....	243				
Fluctuations in head for centrifugal pumps.....	378				
For varying water stages.....	*150				
Ingersoll-Rand sump pump.....	296				
Pumpers' daily report.....	*545				
Report on deep-well pumps.....					





## PERSONAL MENTION

[Photographs are indicated thus.\* Obituaries are indicated thus†]

A					
Abbott, R. B.	7344, †388	Coil, C. W.	40	Gregg, Robert	566
Adams, E. E.	387	Coleman, Richard	252	Groschell, W. R.	342, 388
Ainslie, A. F.	40	Collins, James M.	388	Groth, W. C.	*98
Aishton, R. H.	*203	Colvin, C. S.	252	Grove, C. G.	387
Adams, Lem.	*98, 387	Condit, F. M.	*390	Gruhnkey, W. H.	302
Adamson, G. J.	387	Condon, F. O.	160	Gunn, A. S.	160
Anderson, A. C.	388	Conyers, W. P., Jr.	87	Gunning, H.	344
Anderson, C. E.	388	Cook, Howard P.	*206	Guppy, Benjamin W.	302
Anderson, E. F.	302	Cooper, R. S.	304	Gzowski, C. S.	342
Anderson, H. T.	100	Corbett, F. M.	388, 612		
Armstrong, Arthur W.	*516	Corbett, William M.	†40	H	
Armstrong, J. E.	38	Corcoran, J. T.	388	Hain, G. M.	162, 205
Armstrong, W. H.	565	Coughlin, W. J.	206	Hall, John H.	1514
Artois, F. W.	436	Courtenay, William H.	*436	Hall, W. B.	342
Asplund, A.	†302	Cox, Frank B.	612	Hamm, J. A.	254
Aurelius, Thomas	254	Craddock, A. R.	†514	Hammonds, G. W.	514
Austin, G. G.	160	Cranwell, J. L.	162, 565	Hammond, L. J.	387
B		Crawford, J. A.	344	Harbeck, Eugene	42
Baber, S. A.	434	Crawford, J. E.	302	Harnischfeger, Walter	42
Backes, W. J.	252	Crawford, T.	100	Hartley, L. C.	†40
Backus, C. E.	205	Crew, R. H.	387	Hausgen, William	612
Bade, Edward J.	388	Crocumbe, W. E.	†100, 206	Hawkins, E. L.	160
Baisinger, W. C.	*160	Cummins, R. R.	434	Heims, W. H.	565
Baker, Arthur G.	†565	D		Helwig, F. B.	344
Baker, J. L.	436	Dahl, J. W.	†612	Henderson, Stephen L.	388
Bardin, J. C.	344	Daniels, A.	160	Hendrickson, A. M.	160
Barnett, G. C.	388	Datesman, J. P.	252	Herd, Joseph Pat.	†40
Barnhart, S. H.	436	Daugherty, A.	162, 611	Herr, Edwin M.	†102
Barron, J. F.	100	Davis, B. V.	†162	Herrmann, A. C.	388
Barth, John	388	Davis, D., Jr.	302	Hess, J. J.	*252
Batchelder, Joseph E.	†42	Davis, J.	514	Hewitt, C.	514
Batts, M. E.	342	Dawson, H. L.	87	Hicks, J. W.	252, 302
Bayer, E. J.	342	Dawson, R.	302, †304, 436	Hillman, D.	160, *204
Beal, Henry S.	206	DeLo, C. G.	98	Hirst, William	436
Beatty, J. E.	160, 204	Deyette, W. J.	514	Hoag, H. I.	204
Behan, T. J.	436	Dippert, L.	252	Hodge, W. B.	342
Belcher, R. S.	87	Doty, C. E.	302, †304	Holden, R. F.	388
Belkita, F.	344	Doucet, Arthur Emile	†436	Holley, A. C.	342, †344
Benson, Oscar C.	252	Doupe, J. L.	†436	Holt, A. G.	160
Bergman, C. R.	565	Doughy, M. H.	†205	Houston, W. O.	342
Bertram, H. A.	611	Drawhein, C. A.	612	Howard, D. H.	†40, †109
Bihler, Louis C.	254	Dunlay, R. C.	205	Hoyt, F. N.	250
Bishop, F. J.	342	Duncan, H. R.	87	Hruska, J. W.	344
Bitney, B. R.	611	Durell, G. B.	388	Hubbard, H. M.	†100
Blackmer, Charles F.	†42	E		Hughes, L. J.	254
Blackwood, Arthur E.	38	Egan, J. E.	302	Hunt, C. O.	*614
Blaess, A. F.	205	Elliott, L. B.	342	Hunter, George M.	102
Bogue, D.	160	Engle, C. W.	342	Hurley, Neil C.	304
Bost, M. A.	611	Ensign, J. P.	514	I-J	
Bracken, Edward P.	*40	Evans, E. G.	160	Jacklin, H.	514
Bradley, A. C.	254	Evans, John	342	Jacobson, J. L.	102
Bradley, A. P.	†100	F		James, W. W.	342
Branch, Kent	100	Factor, John	344	Jamison, R. W.	254
Bratton, J. H.	565	Fales, W. L.	205	Jerome, F. J.	160
Brooke, George D.	139	Farrell, John D.	†614	Johansen, George	514
Brooks, E. P.	204	Fathersen, T. W.	98	Johnson, E. H.	160
Brooks, G. E.	254	Feucht, C.	302	Johnson, George E.	250
Brown, E. B.	254	Feucht, P. E.	205	Johnson, R. B.	344
Brown, E. J.	250	Fifthian, E. B.	*388	Johnson, S. J.	344
Brown, H. F.	98	Flynn, William	612	Joyce, Reamy	304
Brown, M. H., Jr.	204	Foote, F. D.	*304	K	
Brown, R. A.	40	Ford, Robert H.	38	Kappler, V. L.	388
Brown, T. W.	40	Fox, J. M.	387	Keay, W. R.	100
Brum, G. M.	252	Fox, M. C.	162	Keays, William	302
Buckley, John E.	302	Freeman, H. W.	436	Keefe, John S.	*42
Bulmer, William A.	100, †203	Fredrickson, H. A.	514	Kelley, C.	40
Burpee, C. Miles	302	Fritsch, E. H.	342, 38	Kimbrough, C. T.	160
Butterfield, J. P.	160, 302	Fuecht, P. E.	162	King, Martin	252
Butterfield, R. L.	514	G		Kirk, F.	302
Byers, Morton L.	†612	Gannon, John W.	302	Kissell, J. E.	342
Byrd, L. G.	514	Gardner, C. J.	302	Kozak, S.	436
C		Gates, C. R.	100	Kraft, F. T.	344
Callahan, H.	206, 565	Gauthier, Almon L.	†566	Krause, H. C.	436
Campman, R. C.	42	Gaylord, C. H.	205	L	
Carlin, T. F.	250	Geary, Paul X.	514, †565	LaBach, Paul M.	*254
Carter, R. H.	†42	Gentle, W. H.	160	Lacher, W. S.	250
Chamberlain, Oscar P.	436	Gersbach, Otto	†388	Lackey, O. N.	40
Chandler, W. A.	388, 160	Gillis, Alexander D.	160	Ladd, F. E.	302
Chaney, A. B.	†100	Gillum, J. W.	387	Lane, R. F.	102
Chase, C. J.	102	Glover, R. V.	565	Larson, Aaron	514
Chase, E. P.	160	Glutz, J. J.	514	Lawrence, N. M.	†516
Cherry, C. E.	40	Gogan, P. J.	252	Layne, Lloyd F.	566
Chisholm, J. C.	514	Gordon, L. H.	†612	Leach, W. K.	100
Church, F. G.	87	Graham, R. P.	387	Lechner, R. F.	344
Church, S. R.	42	Granlund, Gustav V.	611	Lee, Elisha	*438
Church, Walter J.	344	Gray, G. W.	†566	Lewis, C. M.	40
Churchill, M. M.	344	Gray, H. O.	304	Lewis, E. R.	342
Clark, F. B.	302	Greene, Everett A.	514	Lewis, F. E.	434
Clark, George W.	*565	H		Lewis, P. S.	342
Clement, M. W.	304	Hain, G. M.	162, 205	Lincoln, H. B.	205
Clingman, C. S.	612	Hall, John H.	1514	Linton, L. P.	612
Cochran, W. H.	42	Hall, W. B.	342	Little, Clarence A.	565
Cohig, James F.	42	Hamm, J. A.	254	Livingston, Lawrence	514

566  
388  
\*98  
302  
160  
344  
302  
342  
  
205  
†514  
342  
254  
514  
387  
42  
42  
\*†40  
612  
160  
565  
344  
388  
160  
†40  
†\*102  
388  
\*252  
514  
302  
\*204  
436  
204  
342  
2, †344  
388  
160  
342  
†109  
250  
344  
†100  
254  
\*614  
302  
104  
  
514  
102  
342  
254  
160  
514  
160  
250  
344  
304  
  
388  
100  
302  
160  
202  
352  
342  
436  
344  
436  
  
\*254  
250  
302  
102  
†100  
514  
†516  
566  
\*†438  
342  
434  
342  
205, 205  
252  
612  
565  
514  
†102  
436

# INDEX TO AUTHORS

[Illustrated articles are noted\*]

<b>A</b>		<b>P</b>	
Adams, Lem	91	Painter, Master	*431
Anderson, I.	335	Patterson, J. C.	151
Antymniuk, Alex	152	Peabody, J. A.	*421
Austill, H.	245, 503	Peterman, J. F.	84
		Phillips, G. A.	507
		Piper, E. H.	244
		Putnam, Roy W.	556
<b>B</b>		<b>Q R</b>	
Baldrige, C. W.	19, 196, 380	Rambo, W.	34, 246, 605, 608
Banion, E. L.	332	Rape, L. A.	32, 35
Bardwell, R. C.	378	Reece, A. N.	559
Barkley, Harry J.	36, 468	Reetz, A. H.	198, 234, 294
Beatty, J. E.	199, 337	Riggans, John W.	607
Becker, A. L.	197	Robinson, C. S.	197
Becker, Henry	200	Roderk, L. M.	503, 504, 506
Bednarz, John	197, 336	Roof, W. R.	*323
Belden, G. A.	32, 554	Rossi, R.	90, 157, 503, 506
Bell, G. J.	555	Russell, J. A.	94
Blum, Bernard	91		
Breed, C. W.	508		
Bronson, C. B.	299		
Brown, A. E.	154, 197, 200, 245, 377, 381, 426, 428, 430, 556, 605		
Byrd, L. G.			
<b>C</b>		<b>S</b>	
Chinn, Armstrong	92, 608	Safford, E. P.	35, 247
Clarke, H. R.	555	Schantz, C. P.	336
Cleveland, W. H.	385	Schram, I. H.	34, 244, 502
Cook, Paul D.	335	Schwinn, F. S.	554
Coughlan, R. E.	*418	Scowden, A. B.	556
Craft, E. A.	244	Shoup, S. E.	557
Crane, W. R.	91	Skov, L. W.	295
Critchett, J. H.	601	Smythe, H. L.	*597
Cumby, J. W.	197	Southard, J. L.	290, 555
Curtis, D. C.	*320	Sparks, A. L.	93, 247
		Sparks, W. H.	32, 34, 94, 156, 197, 198, 290, 331, 334, 379, 381, 502, 505, 557
		Stanwood, Clark M.	92
		Stark, P. W.	505
		Stein, H. L.	603
		Stimson, Earl	*184
<b>D</b>		<b>T</b>	
Dalstrom, O. F.	153	Tallent, C. E.	200
Davidson, J. H.	243, 378, 558	Talryn, L. L.	506
DeNardo, N. P.	95	Talman, H. S.	557, 560, 606
Desmond, J. J.	242, 335	Tillett, W. E.	90, 196, 200, 242, 295, 333, 379, 425, 427, 503, 506, 605
Disney, C. P.	196		
Donahoe, Maurice	246		
Donahoe, T. F.	334, 505		
Doughty, M. H.	93		
Drumeller, L. J.	94, 426		
Duncan, H. R.	201, 332		
<b>E</b>		<b>U-V</b>	
Egan, J. J.	247	Vogel, John L.	195, 248
Edwards, E. E.	30, 424	Von Schrenk, Dr. Herman	*25
<b>F</b>		<b>W</b>	
Fanning, George S.	291	Walker, Thomas	91, 155, 379, 608
Faries, Robert	508	Watt, J. R.	560
Fiffeld, H. F.	94, 290, 557	Wendling, G. C.	*594
Finnes, A.	246	Westfall, C. C.	31, 195
Fish, Gilbert D.	*80	Whipple, C. A.	336
Foster, R. N.	198	White, Robert	32, 155, 292, 335, 381, 425, 429, 503, 560
		Wilson, J. B.	377, 379, 381
		Wood, John P.	*190
		Woodruff, C. H.	420, 428, 431, 555, 606
<b>G</b>			
Gadd, William E.	*548		
<b>H</b>			
Hahn, Roy	31, 33		
Harper, L. L.	201, 332		
Hartley, Francis M. Jr.	607		
Hawk, A. T.	33, 154, 294, 380, 604		
Helmig, G. M.	31, 154, 245, 248, 291		
Heritage, C. S.	31		
Herrington, H. E.	152, 197, 331		
Hickox, J. R.	243		
Holmes, R. L.	333		
Howard, F. A.	31		
Howe, C. H. R.	552		
Howse, W. J.	246		
Hunt, George M.	385		
<b>I</b>			
Itwin, A. C.	152		
<b>J</b>			
Johnson, A. A.	608		
Judd, Frank R.	96, 248, 507, 559		
<b>K</b>			
Ketterson, A. R.	295		
Kirkpatrick, C. S.	504		
Knowles, C. R.	33, *140, 157, 333, *428, 507, 558		
<b>L</b>			
LaBat, J. J.	36, 91, 152, 607		
Lang, P. G. Jr.	283		
Lesley, J. C.	153		
Livingston, H. T.	200, 291		
Loeffler, H. S.	96		
<b>Mc</b>			
McLeod, H. W.	35		
<b>M</b>			
Manning, W. J. H.	602		
Marshall, Joe	*192		
Martin, J. B.	155, 293		
Matthews, David	294		
Miller, A. A.	35		
Morrow, G. W.	299		
Moses, M. H.	35		
<b>N</b>			
Neville, E. C.	382, 607		
<b>O</b>			
Orrock, J. W.	199, 380, 559		
O'Rourke, Geo. M.	156, 502		

\*431  
151  
\*421  
94  
507  
244  
556

608  
35  
559  
294  
607  
197  
506  
\*323  
506  
94

247  
386  
502  
554  
556  
557  
295  
\*597  
555  
247  
557  
92  
505  
603  
\*184

200  
506  
606  
605

248  
\*25

608  
560  
\*594  
195  
386  
560  
381  
\*190  
606